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10/590,846	08/25/2006	Masaharu Ueda	1551-0158PUS1	4142
2292 7590 03/24/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
FOGARTY, CAITLIN ANNE				
ART UNIT		PAPER NUMBER		
1793				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/590,846

Applicant(s)

UEDA ET AL.

Examiner

CAITLIN FOGARTY

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2010.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 13-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2 and 13-22 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notes of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1, 2, and 13 – 22 are pending where claims 1 and 2 have been amended and claims 21 and 22 are new. Claims 3 – 12 have been cancelled.

Status of Previous Rejections

2. The 35 U.S.C. 112 first paragraph rejection of claims 1 and 2 has been withdrawn in view of the amended claims filed January 7, 2010.

The 35 U.S.C. 103(a) rejection of claims 1, 2, and 13 – 20 as being unpatentable over JP 2002-226914 in view of JP 11-350075 has been maintained.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 2, and 13 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereinafter JP '914) in view of the English machine translation of JP 11-350075 (hereinafter JP '075).

JP '914 in view of JP '075 is applied to claims 1, 2, and 13 – 20 as set forth in the September 10, 2009 Office action. Claims 1 and 2 have been amended.

With respect to amended instant claim 1, JP '914 in view of JP '075 differs from instant claim 1 because they do not specifically teach expression 1. However, [0009] of

JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C. Therefore, JP '914 in view of JP '075 satisfies expression 1 if, for example, C is 1.0 and T is 1000°C then $CPT1=0.8$ which is within the claimed range of $S \leq CPT1 \leq 0.97$ where $0.10 \leq S \leq 0.85$.

In regards to amended instant claim 2, JP '914 in view of JP '075 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more which overlaps with the claimed range of P. Therefore, JP '914 in view of JP '075 satisfies expression 2 if, for example, C is 1.0, T is 1000°C, and P is 3 then $CPT2=0.8$ which is within the claimed range of $S \leq CPT2 \leq 0.98$ where $0.10 \leq S \leq 0.85$.

6. Claims 1, 2, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/085149 A1 by use of the English equivalent US 2004/0187981 (hereinafter US '981).

With respect to instant claim 1, [0028], [0084]-[0109], and [0200]-[0207] of US '981 teach a method for producing a steel rail having a high content of carbon with an overlapping composition as seen in Table 1 below.

Table 1

Element	Instant Claims 1 & 2 (mass %)	US '981 (mass %)	Overlapping Range (mass %)
C	0.85 – 1.40	0.65 – 1.40	0.85 – 1.40
Si	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00
Mn	0.05 – 2.00	0.05 – 2.00	0.05 – 2.00

B	0.0001 – 0.0050	0.0001 – 0.0050	0.0001 – 0.0050
N	0.0060 – 0.0200	0.0040 – 0.0200	0.0060 – 0.0200
Optionally: Cr, Mo, Co, Cu, Ni, Ti, Mg, Ca, Al, Zr, V, and/or Nb	0.05 – 2.00 Cr	0.05 – 2.00 Cr	0.05 – 2.00 Cr
	0.01 – 0.50 Mo	0.01 – 0.50 Mo	0.01 – 0.50 Mo
	0.003 – 2.00 Co	0.10 – 2.00 Co	0.10 – 2.00 Co
	0.01 – 1.00 Cu	0.05 – 1.00 Cu	0.05 – 1.00 Cu
	0.01 – 1.00 Ni	0.05 – 1.00 Ni	0.05 – 1.00 Ni
	0.0050 – 0.0500 Ti	0.0050 – 0.0500 Ti	0.0050 – 0.0500 Ti
	0.0005 – 0.0200 Mg	0.0005 – 0.0200 Mg	0.0005 – 0.0200 Mg
	0.0005 – 0.0150 Ca	0.0005 – 0.0150 Ca	0.0005 – 0.0150 Ca
	0.0100 – 1.00 Al	0.0080 – 1.00 Al	0.0100 – 1.00 Al
	0.0001 – 0.2000 Zr	0.0001 – 0.2000 Zr	0.0001 – 0.2000 Zr
	0.005 – 0.500 V	0.005 – 0.50 V	0.005 – 0.50V
	0.002 – 0.020 Nb	0.002 – 0.050 Nb	0.002 – 0.020 Nb
Fe + Impurities	Balance	Balance	Balance

US '981 also teaches that the method comprises finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 1-30% which overlaps with the instant recited range.

US '981 differs from instant claim 1 because it does not specifically teach expression 1. However, [0207] of US '981 discloses that the time between rolling passes (S) is not longer than 10 seconds which overlaps with the time range (S) recited in the instant claim. US '981 also teaches in [0202] that the surface temperature of the rail (T) is 850-1000°C. Therefore, US '981 satisfies expression 1 if, for example, C is 1.0 and T is 1000°C then $CPT1=0.8$ which is within the claimed range of $S \leq CPT1 \leq 0.97$ where $0.10 \leq S \leq 0.85$.

In regards to instant claim 2, [0028], [0084]-[0109], and [0200]-[0207] of US '981 teach a method for producing a steel rail having a high content of carbon with an overlapping composition as seen in Table 1 above. US '981 also teaches that the method comprises finish rolling the rail in two or more consecutive passes with a

reduction rate per pass of a cross-section of the rail of 1-30% which overlaps with the instant recited range.

US '981 differs from instant claim 2 because it does not specifically teach expression 2. However, [0207] of US '981 discloses that the time between rolling passes (S) is not longer than 10 seconds which overlaps with the time range (S) recited in the instant claim. US '981 also teaches in [0202] and [0204] that the surface temperature of the rail (T) is 850-1000°C and that the number of passes (P) is 2 or more. Therefore, US '981 satisfies expression 2 if, for example, C is 1.0, T is 1000°C, and P is 3 then $CPT2=0.8$ which is within the claimed range of $S \leq CPT2 \leq 0.98$ where $0.10 \leq S \leq 0.85$.

Regarding instant claims 21 and 22, as seen in Table 1 above, US '981 teaches that the rail contains 0.0001-0.2000 mass% Zr which is the same as the instant recited range.

Since the claimed compositional ranges of claims 1, 2, 21, and 22 either overlap or are within the ranges disclosed by US '981, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed steel composition from the steel composition disclosed by US '981 because US '981 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

7. Claims 1, 2, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2002-226914 (hereinafter JP '914) in view of US 6,086,685 (hereinafter US '685).

With respect to instant claims 1 and 21, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon with a similar composition to that of the instant invention. JP '914 teaches that the method comprises finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 1.

JP '914 differs from instant claims 1 and 21 because it does not teach an overlapping composition. However, col. 3 lines 14-19 and col. 6 line 1-col. 7 line 13 of US '685 disclose a steel rail having a high content of carbon with an overlapping composition as seen in Table 2 below.

Table 2

Element	Claims 1, 2, 21, & 22 (mass %)	US '685 (mass %)	Overlapping Range (mass %)
C	0.85 – 1.40	0.41 – 1.3	0.85 – 1.3
Si	0.05 – 2.00	≤ 0.93	0.05 – 0.93
Mn	0.05 – 2.00	0.31 – 2.55	0.31 – 2.00
B	0.0001 – 0.0050	≤ 0.006	0.0001 – 0.0050
N	0.0060 – 0.0200	----	----
Optionally: Cr, Mo, Co, Cu, Ni, Ti, Mg, Ca, Al, Zr, V, and /or Nb	0.05 – 2.00 Cr	0.21 – 2.45 Cr	0.21 – 2.00 Cr
	0.01 – 0.50 Mo	≤ 0.88 Mo	0.01 – 0.50 Mo
	0.003 – 2.00 Co	---- Co	---- Co
	0.01 – 1.00 Cu	---- Cu	---- Cu
	0.01 – 1.00 Ni	≤ 2.4 Ni	0.01 – 1.00 Ni
	0.0050 – 0.0500 Ti	≤ 0.28 Ti	0.0050 – 0.0500 Ti
	0.0005 – 0.0200 Mg	---- Mg	---- Mg
	0.0005 – 0.0150 Ca	---- Ca	---- Ca
	0.0100 – 1.00 Al	≤ 0.06 Al	0.0100 – 0.06 Al
	0.0001 – 0.2000 Zr	≤ 0.28 Zr	0.0001 – 0.2000 Zr
	0.005 – 0.500 V	≤ 0.39 V	0.005 – 0.39 V
	0.002 – 0.020 Nb	≤ 0.28 Nb	0.002 – 0.020 Nb
Fe + Impurities	Balance	Balance	Balance

US '685 differs from instant claim 1 because it does not specifically teach that the steel rail comprises nitrogen. However, the claimed minimum amount of 0.0060 mass% N is an impurity level and it is well known in the art that nitrogen is a naturally occurring

impurity in steel. It would have been obvious to one of ordinary skill in the art to use the composition of the steel of US '685 in the method of JP '914 because the steel of US '685 may also be used as a rail steel and the range of components of US '685 allows for a reasonably priced chemical alloy composition (see col. 7 lines 54-56 of US '685).

JP '914 in view of US '685 differs from instant claim 1 because they do not specifically teach expression 1. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range (S) recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C. Therefore, JP '914 in view of US '685 satisfies expression 1 if, for example, C is 1.0 and T is 1000°C then $CPT1=0.8$ which is within the claimed range of $S \leq CPT1 \leq 0.97$ where $0.10 \leq S \leq 0.85$.

In regards to instant claims 2 and 22, the abstract and [0009] of JP '914 teach a method for producing a steel rail having a high content of carbon comprising finish rolling the rail in two or more consecutive passes with a reduction rate per pass of a cross-section of the rail of 5-30% which is within the range recited in instant claim 2.

JP '914 differs from instant claims 2 and 22 because it does not teach an overlapping composition. However, col. 3 lines 14-19 and col. 6 line 1-col. 7 line 13 of US '685 disclose a steel rail having a high content of carbon with an overlapping composition as seen in Table 2 above. US '685 differs from instant claim 2 because it does not specifically teach that the steel rail comprises nitrogen. However, the claimed minimum amount of 0.0060 mass% N is an impurity level and it is well known in the art that nitrogen is a naturally occurring impurity in steel. It would have been obvious to

one of ordinary skill in the art to use the composition of the steel of US '685 in the method of JP '914 because the steel of US '685 may also be used as a rail steel and the range of components of US '685 allows for a reasonably priced chemical alloy composition (see col. 7 lines 54-56 of US '685).

JP '914 in view of US '685 differs from instant claim 2 because they do not specifically teach expression 2. However, [0009] of JP '914 teaches that the time between rolling passes (S) is 10 seconds or less which overlaps with the time range recited in the instant claim. JP '914 also teaches that the surface temperature of the rail (T) is 900-1050°C and that the number of passes (P) is 2 or more which overlaps with the claimed range of P. Therefore, JP '914 in view of US '685 satisfies expression 2 if, for example, C is 1.0, T is 1000°C, and P is 3 then $CPT2=0.8$ which is within the claimed range of $S \leq CPT2 \leq 0.98$ where $0.10 \leq S \leq 0.85$.

Regarding instant claims 21 and 22, as seen in Table 2 above, US '685 teaches that the rail contains ≤ 0.28 mass% Zr which overlaps with the instant recited range.

Since the claimed rolling interval time, reduction rate, and number of passes of claims 1 and 2 either overlap or are within the ranges disclosed by JP '914, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed rolling interval time, reduction rate, and number of passes from the steel rail composition disclosed by US '685 because US '685 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

Similarly, since the claimed compositional ranges of claims 1, 2, 21, and 22 either overlap or are within the ranges disclosed by US '685, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed steel rail composition from the steel rail composition disclosed by US '685 because US '685 teaches the same utility (i.e. a railroad rail) in the whole disclosed range.

Response to Arguments

8. Applicant's arguments filed January 7, 2010 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

- a. Although the Examiner alleges that the prior art exhibits a CPT1 value of 1.05, and a CPT2 value of 1.05, the prior art fails as a whole to suggest or disclose the presently claimed upper limits of 0.97 (claim 1) and 0.98 (claim 2). There is no reason to modify the various parameters to arrive at the presently claimed CPT1 and CPT2 values. The cited art fails as a whole to suggest or disclose the CPT1 and CPT2 values as required by claim 1 and claim 2, respectively.
- b. Neither JP '914 nor JP '075 suggest or disclose the incorporation of Zr in the amounts claimed in new claims 21 and 22.

Examiner's responses are as follows:

- a. The Examiner addressed the amended claim 1 and 2 limitations regarding CPT1 and CPT2, respectively, in the above rejections. The Examiner maintains

the position that since JP '914 in view of JP '075 teaches an overlapping composition of carbon (C), an overlapping maximum surface temperature of a rail head (T), an overlapping number of passes (P), and an overlapping maximum rolling interval (S) they satisfy claimed expressions 1 and 2. Applicant has not demonstrated the criticality of either expression 1 or expression 2 and therefore the Examiner maintains that a prima facie case of obviousness exists because JP '914 in view of JP '075 teaches overlapping ranges for all of the variables in the expressions.

- b. See rejections for new claims 21 and 22 above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
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CF